

CLAIMS

I Claim:

- 1 1. An apparatus comprising:
2 a processor to respond to an event-driven action; and
3 a driver coupled to said processor to perform a program function when an
4 indication of the event-driven action is received from said processor, said driver to control
5 a response to the event-driven action external to a management mode of said processor.
- 1 2. The apparatus of claim 1 wherein said processor responds to an event-driven action
2 from an input/output device.
- 1 3. The apparatus of claim 1 wherein said processor responds to an event-driven action
2 from an input/output device to perform a control action on a device.
- 1 4. The apparatus of claim 1 wherein said processor responds to an event-driven action
2 from an input/output device to perform a control action on a device which may be
3 simultaneous controlled by system firmware and software device driver.
- 1 5. The apparatus of claim 1 wherein said processor responds to a hot-key action to
2 perform a control action operation on a device altering it's current state or setting.
- 1 6. The apparatus of claim 1 wherein said processor responds to a hot-key action to
2 perform a control action with the co-operation of both system firmware management and
3 operating system device driver management for the benefit of consistent behavior within
4 an operating system environment.

- 1 7. An apparatus comprising:
- 2 a controller to receive an indication of an event-driven action from system
- 3 firmware when the event-driven action occurs and to generate a signal in response to the
- 4 received indication; and
- 5 a device driver coupled to said controller to perform a program function in
- 6 response to the signal to control an operation to alter the devices current state, in which the
- 7 program function performs the control action external to a system management mode of
- 8 the processor firmware.
- 1 8. The apparatus of claim 7 wherein said controller includes an interrupt generation
- 2 logic to generate an interrupt as the signal in response to a hot-key event-driven action.
- 1 9. The apparatus of claim 8 wherein said driver includes an interrupt service routine
- 2 to process the interrupt and acquire control to perform the control action.
- 1 10. The apparatus of claim 9 wherein said driver sets a first flag to acquire control of
- 2 said controller to perform the control action.
- 1 11. The apparatus of claim 10 wherein said driver sets a second flag to indicate to said
- 2 controller that the control action is completed.
- 1 12. The apparatus of claim 11 wherein said controller is interrogated periodically to
- 2 determine if the second flag is set and if the second flag is set, completing the hot-key
- 3 event-driven action.
- 1 13. The apparatus of claim 7 wherein said controller is a graphics controller with a
- 2 multiplicity of displays outputs, in which the hot-key event-driven action initiates a
- 3 display switch from one of the displays to another display.

1 14. The apparatus of claim 7 wherein said controller also includes a basic input output
2 system, BIOS, programming to allow the management mode of the firmware to control the
3 switching and in which a programmed selection determines if said driver or the BIOS
4 programming controls the switch.

1 15. The apparatus of claim 7 wherein said controller is a graphics controller and
2 includes a video basic input output system, BIOS, programming to allow the management
3 mode of the firmware to control the switching and in which a programmed selection
4 determines if said driver or the video BIOS programming controls the switch between a
5 first and second display devices.

1 16. A driver comprising:
2 a first routine to receive a signal in response to an indication of an event-driven
3 action from a processor firmware when the event-driven action occurs; and
4 a second routine to control an operation to switch a program function from
5 supporting a first device to support a second device, in which the driver's program
6 function performs the switch external to a management mode of the processor firmware.

1 17. The driver of claim 16 wherein the driver supports a variety of input/output, I/O,
2 devices and the driver performs the control action on the devices.

1 18. The driver of claim 16 wherein the driver supports a variety of display devices and
2 the driver performs the switch from a first display device to any other display device.

1 19. The driver of claim 18 wherein the first routine receives an interrupt in response to
2 the indication of an event-driven action from a processor firmware and generates a flag to
3 obtain control from a controller for the display switch.

1 20. A machine-readable medium that provides instructions, which when executed by a
2 machine, causes the machine to perform operations comprising:

3 processing a signal in response to an indication of an event-driven action from a
4 processor firmware when the event-driven action occurs; and

5 performing a routine to control an operation to switch a program function from
6 supporting a first device to support a second device, in which the routine performs the
7 switch external to a management mode of the processor firmware.

1 21. The machine-readable medium of claim 20 further including an instruction to set a
2 flag to a controller to indicate that the routine is prepared to perform the switch.

1 22. The machine-readable medium of claim 20 further including an instruction to set a
2 flag to a controller to indicate that the routine has completed the switch.

1 23. A method comprising:

2 generating an indication of an event-driven action to perform some action on a
3 device ;

4 responding to the indication to handle the event-driven action external to a system
5 management mode of system firmware;

6 handling the device switch external to the management mode of a processor
7 firmware by having a driver handle the control action; and

8 returning control from the driver at completion of the device switch.

1 24. The method of claim 23 wherein the handling of the device switch by the driver
2 includes switching from one display device to another display device.

1 25. The method of claim 23 wherein the handling of the display image fitting or image
2 centering by the driver includes adjusting a device setting.

0956549-092801

1 26. The method of claim 23 wherein the handling of the display brightness by the
2 driver includes adjusting the brightness of the display.

1 27. The method of claim 23 wherein handling of the device control is in response to
2 receiving an interrupt, upon which the driver performs the control action.

1 28. A computer system comprising:

2 a system firmware including a basic input output system, BIOS, programming to
3 detect an event-driven action;

4 a controller to receive an indication from said processor firmware of an event-
5 driven action when the event-driven action occurs and to generate a signal in response to
6 the received indication; and

7 a driver coupled to said controller to perform a program function in response to the
8 signal to control an operation to control aspects of the device, in which the program
9 function performs the operation external to system management mode of said processor
10 firmware.

1 29. The computer system of claim 28 wherein said controller is a graphics controller
2 and a switching action is initiated between a plurality of attached display devices.

1 30. The computer system of claim 28 wherein the event-driven action is a hot-key
2 action.